

# 1           **TOOL SUSPENSION PLATE FOR A SCREWDRIVER SET**

## 2    BACKGROUND OF THE INVENTION

### 3    1. Field of the Invention

4           The present invention relates to a tool suspension plate, and more  
5 particularly a tool suspension plate adapted to hold and display a screwdriver  
6 set.

### 7    2. Description of Related Art

8           With reference to Figs. 6 and 7, a conventional tool suspension rack is  
9 adapted to hold a wrench (80) and comprises a suspension plate (70) with a  
10 bottom and a bracket (72) detachably secured on the suspension plate (10).  
11 Two slits (701) are defined in the suspension plate (70) respectively at two  
12 sides near the bottom and two first apertures (702) are defined in the  
13 suspension plate (70) close to the slits (701). The bracket (72) is a U-shaped  
14 frame with a recess (not numbered) and has two connecting protrusions (721)  
15 formed on two oppositely distal ends of the bracket (72) to abut on the  
16 suspension plate (70). Each connecting protrusion (721) has a hook (722)  
17 correspondingly and detachably engaged with one respective slit (701) of the  
18 suspension plate (70). Each connecting protrusion (721) further has a second  
19 aperture (723) aligning with the first aperture (702). Thereby, a locking pin  
20 (74) is enabled to penetrate the first and second apertures (702)(723) to fasten  
21 the bracket (72) and the suspension plate (70) together.

22           The wrench (80) is held on the tool suspension rack by resting a first  
23 head end of the tool on the bracket (72) via the recess and usually has a second  
24 head end connected by a slender handle to the first head end (not shown) that

1 avoids the wrench (80) from being pulled upward to escape from the tool  
2 suspension rack. Therefore, once the locking pins (74) are attached on the  
3 bracket (74) and the suspension plate (70), the wrench (80) is not detachable to  
4 prevent shoplifting. The retailer can remove the locking pins (74) to allow a  
5 customer to inspect the wrench prior to purchase. However, for other tools  
6 without two large ends separated by a slender portion, such as screwdriver, it  
7 is not suitable to use such kind of tool suspension rack. This is because  
8 although the screwdriver has a large handle at one end that can rest on the  
9 bracket it has only a straight shaft formed at the other end that means the  
10 screwdriver can exit through the recess. Therefore, the screwdriver is easily  
11 stolen from the tool suspension rack.

12 In order to make a suitable tool suspension structure for screwdrivers,  
13 the present invention provides a tool suspension plate to conveniently retain  
14 and display a screwdriver set.

#### 15 SUMMARY OF THE INVENTION

16 A main objective of the invention is to provide a tool suspension plate  
17 for a screwdriver set that has theft-proof, displaying, and retaining effects.

18 Other objects, advantages and novel features of the invention will  
19 become more apparent from the following detailed description when taken in  
20 conjunction with the accompanying drawings.

#### 21 BRIEF DESCRIPTION OF THE DRAWINGS

22 Fig. 1 is an exploded perspective view of a tool suspension plate in  
23 accordance with the present invention;

24 Fig. 2 is a perspective view of the tool suspension plate in accordance

1 with Fig. 1, wherein the tool suspension plate is assembled;

2 Fig. 3 is a top plane view of the tool suspension plate in accordance  
3 with Fig. 1, wherein a screwdriver is mounted on the tool suspension plate;

4 Fig. 4 is a partially enlarged exploded view of a fastening means  
5 between a plate and a positioning bracket of the tool suspension plate;

6 Fig. 5 is an operational side plane view of detaching the screwdriver  
7 from the tool suspension plate;

8 Fig. 6 is an exploded perspective view of a conventional tool  
9 suspension rack for a wrench in accordance with the prior art; and

10 Fig. 7 is a perspective view of the conventional tool suspension rack,  
11 wherein the conventional tool suspension rack is assembled.

## 12 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

13 The tool suspension plate for a screwdriver set in accordance with the  
14 present invention comprises a base, a resting flange formed on the base, a  
15 positioning bracket detachably mounted on the base and crossing the  
16 screwdriver set to provide a thief-proof efficiency, and at least one stop plate  
17 formed on the base.

18 With reference to Figs. 1 and 3, a tool suspension plate has the  
19 screwdriver set placed vertically and arranged one by one in a longitudinal  
20 direction. The tool suspension plate comprises a base (10) with a top, a bottom  
21 and two sides, and a resting flange (14) erectly formed at the bottom on the  
22 base (10).

23 The base (10) is a rectangular plate with a top and has two suspension  
24 holes (12) defined in the base (10) respectively at two sides near the top to

1 suspend the base (10) on a desired place by means of hooks. Multiple through  
2 holes (142) of different sizes are defined in the resting flange (14) to  
3 respectively match with shafts (not numbered) of screwdrivers of different  
4 sizes in a screwdriver set. Thereby, each screwdriver is enabled to extend  
5 through one corresponding through hole (142) by the shaft and rest on the  
6 resting flange (14) when an enlarged handle (not numbered) of the screwdriver  
7 abuts the resting flange (14).

8         The positioning bracket (20) longitudinally crosses the base (10) over  
9 the screwdriver set and is basically a long strip with two ends and an inner side  
10 (not numbered) abutting the base (10). Multiple positioning cutouts (24) are  
11 defined in the positioning bracket (20) to align respective with the through  
12 holes (142) in the resting flange (14) when the positioning bracket (20) is  
13 mounted on the base (10) and to extend to the inner side. The positioning  
14 cutouts (24) have different sizes to respectively correspond to handles (not  
15 numbered) of the screwdrivers of different sizes in the screwdriver set.  
16 Additionally, a locking sheet (22) is formed on each end of the positioning  
17 bracket (20) and each locking sheet (22) has a hole (222) defined in the  
18 locking sheet (22). With further reference to Fig. 4, two end brackets (16) are  
19 respectively formed at two side edges of the base (10) to engage with the  
20 locking sheets (22). Each end bracket (16) is an L-shaped frame integrally  
21 formed with the base (10) and has a short plate (not numbered), a long plate  
22 (not numbered), and a locking hole (162) defined in the long plate to align  
23 with the hole (222) in the locking sheet (22). The short plate of the L-shaped  
24 frame abuts the base (10) at the edge and the long plate of the L-shaped frame

1 is parallel with the base (10) and extends inward. Thereby, a slit (not  
2 numbered) is constructed between the long plate and the base (10) for  
3 accommodating the locking sheet (22). When the locking sheet (22) is inserted  
4 in the slit, a locking pin (164) extends through the locking hole (162) of each  
5 end bracket (16) and the hole (222) in the corresponding locking sheet (22) to  
6 fasten the positioning bracket (20) on the base (10). Preferably, , the  
7 positioning bracket (20) is attached on the base (10) to cross over handles of  
8 the screwdrivers to keep the screwdriver set stay on the base (10).

9         Additionally, the positioning bracket (20) is a long strip and supports  
10 the handles of the screwdriver set so that a middle portion (not numbered) of  
11 the positioning bracket (20) usually overloads and deforms. Therefore, a  
12 strong post (26) with a channel (262) is formed on the positioning bracket (20)  
13 at the middle portion to abut the base (10). Moreover, a locking hole (15) is  
14 defined in the base (10) to align to the channel (262) of the strong post (26)  
15 when the positioning bracket (20) is attached on the base (10). A long locking  
16 pin (152) extends through the channel (262) and the locking hole (15) to  
17 securely hold the middle portion of the positioning bracket (20) on the base  
18 (10) to avoid the positioning bracket (20) deforming.

19         Additionally, multiple stop plates (18) are formed on the base (10)  
20 near the top and each stop plate (18) aligns with one of the positioning cutouts  
21 (24) to abut a top of the handle of the screwdriver. Thereby, the screwdrivers  
22 can not be drawn out from the top when suspended between the base (10) and  
23 the positioning bracket (20).

24         With reference to Fig. 5, when the screwdriver is to be detached from

1 the tool suspension plate, the positioning bracket (20) is detached from the  
2 base (10) first. Then, the screwdriver is pushed out to separate the handle from  
3 the stop plate (18). Lastly, the screwdriver is pulled upward to make the shaft  
4 completely separate from the through hole (142) of the resting flange (14).

5 According to the foregoing description, one screwdriver is enabled to  
6 extend through the resting flange (14) at the shaft and to rest on the resting  
7 flange (14). Then, the handle of the screwdriver is clamped within the  
8 positioning cutout (24) on the positioning bracket (20) when the positioning  
9 bracket (20) is attached on the base (10). Thereby, each screwdriver in the  
10 screwdriver set is enabled to be firmly and stably held on the tool suspension  
11 plate. Further, in cooperation with the stop plates (18), the tool suspension  
12 plate has a thief-proof efficiency to demonstrate the screwdriver set in a safe  
13 way.

14 Even though numerous characteristics and advantages of the present  
15 invention have been set forth in the foregoing description, together with  
16 details of the structure and function of the invention, the disclosure is  
17 illustrative only, and changes may be made in detail, especially in matters of  
18 shape, size, and arrangement of parts within the principles of the invention to  
19 the full extent indicated by the broad general meaning of the terms in which  
20 the appended claims are expressed.